F I N A

INTERNATIONAL

INSTALLATION and CONFIGURATION MANUAL

United States Agency
for International Development

Table of Contents

List of Figures

1. Overview

The purpose of this manual is to describe the steps necessary for installation of the United States Agency for International Development (USAID) FinA International System (FinA). The primary user of the document is the designated FinA Systems Administrator (SA).

FinA has a three-tier architecture. It is comprised of a desktop (client) application, an application server, and a database server. The application is written in Java. The database application is written in Microsoft SQL Server. The desktop machine should have an MS 98/2000/XP operating system installed. For the database, the application runs on MS SQL 7.0/2000.

All files necessary for installation are provided on the installation CD.

CD Label:	FinA Installation CD
Client software:	FinAc.exe
Application Server software:	FinAs.exe
Demo database for SQL 2000:	FinADB.bck

Note:. FinA client and FinA application server must be installed on different machines for the system to function properly. Detailed instructions on configuring the system once it has been installed are provided in Chapter 5, "System Configuration".

2. Resources

2.1. Hardware

The hardware requirements for FinA are provided below:

- Application Server:

  Minimum Configuration: Pentium II class – random access memory (RAM) 128 MB/50 MB for application server files, plus necessary space for database (approximately 200 MB for one year of data for smaller Central Banks), 10/100 Mbps Ethernet NIC, SVGA 800x600
  Recommended Configuration: Pentium III class - RAM 512MB, 20GB HDD, 10/100 Mbps Ethernet NIC, SVGA 800x600

- Client:

  Minimum Configuration: Pentium II class - RAM 64 MB, 40 MB free disk space, 10/100 Mbps Ethernet NIC, SVGA 800x600

Recommended Configuration: Pentium II class - RAM 256 MB, 40 MB free disk space, 10/100 Mbps Ethernet NIC, SVGA 800x600

- Database Server:

  For minimum as well as recommended hardware configuration information, please go to http://www.microsoft.com/sql/default.asp

Note: The amount of RAM required for running the Database server depends on the size of the database and the administration tools being used. A typical installation of a Database server requires a minimum of 300-400 MB of disk space.

2.2. Software

The software requirements are provided below:

- Operating system for the client: MS Windows 98/NT/2000/XP
- Software for the client and application server: FinAClient and FinAServer (included in the installation package)
- Database Server: MS SQL 7.0/2000

2.3. Network

All processing and analysis take place on the application server. Therefore FinA does not require a high-speed network connection. The recommended LAN speed is 10 Mbps from the client to the application server and 100 Mbps from the application server to the database server.

A Transmission Control Protocol/Internet Protocol (TCP/IP) protocol has to be installed and properly configured for the specific working environment. Detailed instructions on the installation and configuration of the TCP/IP Protocol are provided in Chapter 5, "System Configuration" and in Chapter 6, "Security".

2.4. Tools

No special tools are required for the proper installation and configuration of FinA.

2.5. Human Resources

The SA for FinA should have qualifications and experience in the following areas:

- MS Operating Systems
- MS SQL Server
- LAN Administration
- Database Management

- Security

3. Installation

The installation process for FinA is a three-step process. These steps can be completed in any order:

1. Database installation
2. Application server installation
3. Client installation

The start up of the FinA system, however, requires that the process of steps outlined below are followed in the order written:

1. Start the database server
2. Start the application server
3. Start the client

This is the necessary because: the FinA data is on the database server; the application server connects to the database and serves the client; and finally, the client connects to the application server and serves the user.

3.1. Database

3.1.1. Basic Outline

The installation of the database server includes the following steps:

- Install SQL server
- Create blank database (FinA2)
- Restore database
- Restore demonstration database

3.1.2. Install SQL Server

It is assumed that the MS SQL database server (MS SQL7.0 or 2000) is installed and configured properly. Please go to http://www.microsoft.com/sql/techinfo/default.asp for detailed instructions on server installation.

3.1.3. Create Blank Database

To create a blank database on the SQL server:

- Run Enterprise Manager from **Start/Programs/Microsoft SQL Server** group
- Expand the SQL server group and highlight the correct server

- On the Action menu, choose **New/Database** (or select the "New Database" icon as shown on *Figure 3.1.3.1*)
- Name the database *FinA2*
- Keep the default settings and select **OK**

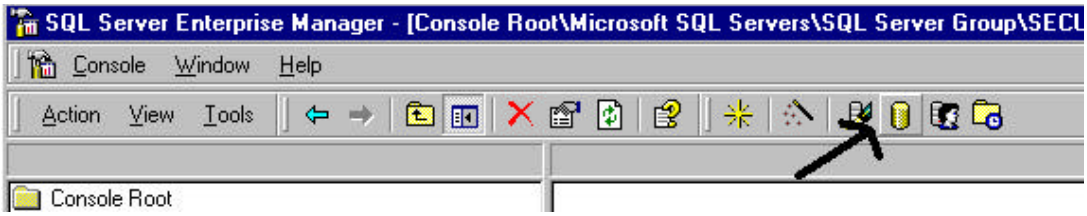

Figure 3.1.3.1, SQL Server Enterprise Manager

Note: The MS SQL 7.0/2000 server must be configured for a dual authentication mode that is based both on the Windows NT accounts and a named SQL Server ID and password. Refer to Chapter 5.1.1, "SQL Server Security Properties" for an explanation of how to verify and/or correct this in the Enterprise Manager.

Note: By default the user SA for the database has no password. If the Supervisor finds it necessary for the SA user to have a password, please refer to Chapter 5.1.2, "Password for user 'SA', for the required configuration changes. If these changes are not made, the FinA application server will not run.

3.1.4. Restore Database

To restore the database, open the SQL Server Enterprise Manager. Click on **Microsoft SQL Server/SQL Server Group/Server** (used for FinA)**/FinA2 database**. Once the FinA2 database has been highlighted, select from the Action Menu **All Tasks/Restore Database** (or right-click the FinA2 database and choose **All Tasks/Restore Database**). See *Figure 3.1.4.1*:

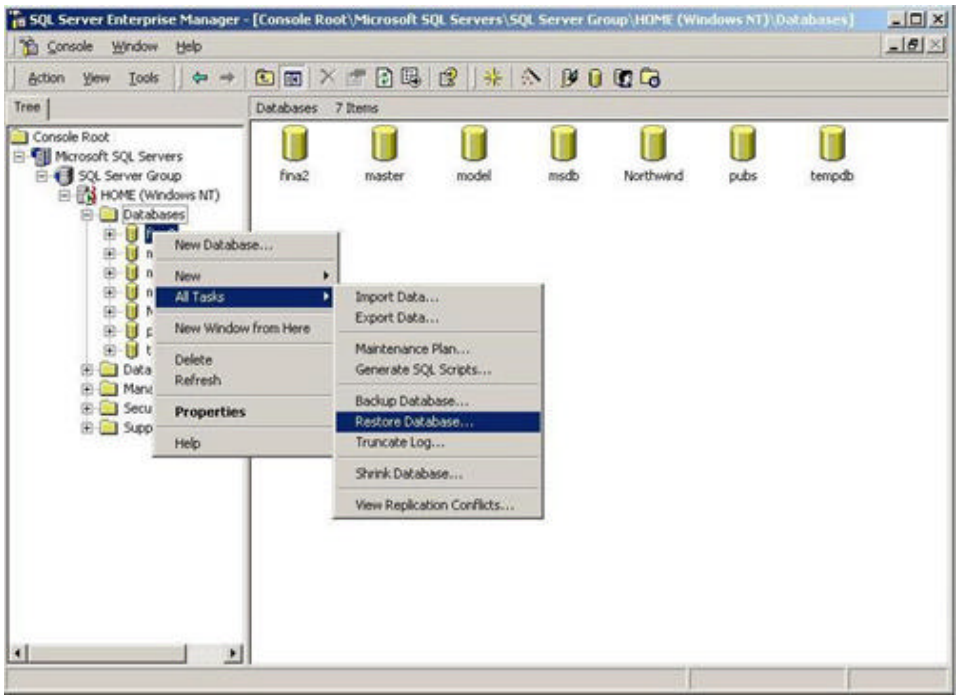

Figure 3.1.4.1, All Tasks/Restore Database

The screen shown on *Figure 3.1.4.2* opens.

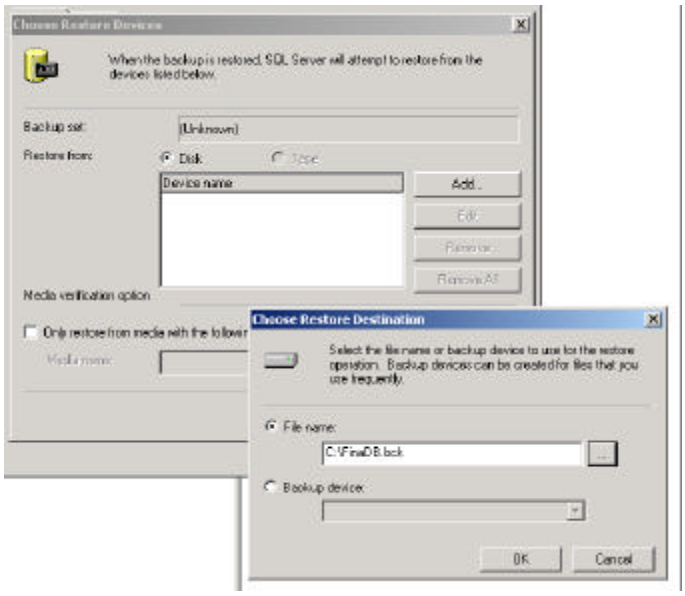

Figure 3.1.4.2, Choose Restore Destination

Click on the **General** tab and select the **From device** Restore option. Then click on **Select Devices**. On the next screen, click on **ADD** to specify the file name or backup device to use for the restore operation. In the **Choose Restore Destination** dialog box specify the file name **FinaDB.bck**, which is the file that contains the backup (see *Figure 3.1.4.2*).

Then click on the **Options** tab, select **Force restore over existing database** (see *Figure 3.1.4.3*).

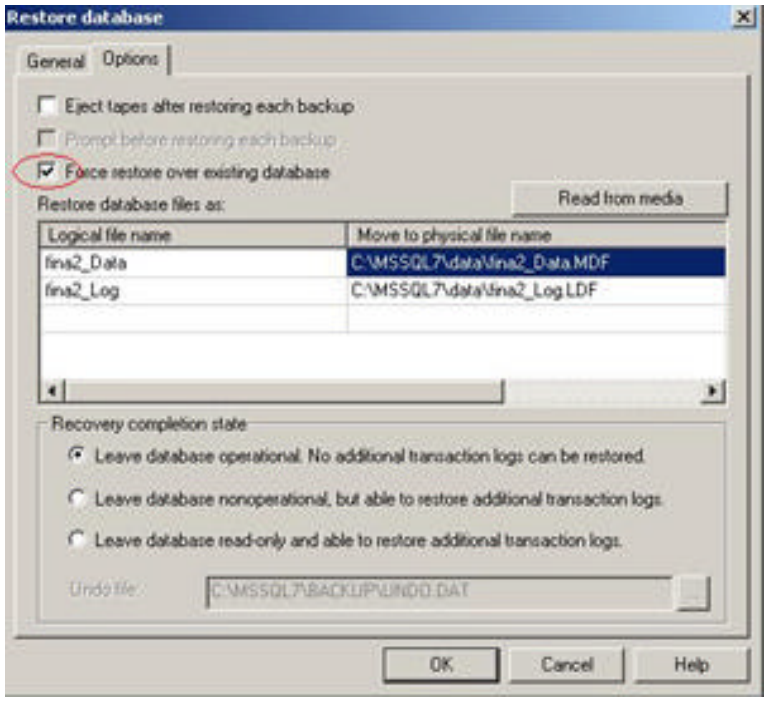

Figure 3.1.4.3, Force restore

This "Forced restore over existing database" operation is necessary only if there is already an existing database called FinA2 in the system.

Note: Caution must be exercised when this procedure is used, because it will overwrite your existing FinA2 database with the new (empty or demonstration) database.

To finalize the process of database restoration, click on **Leave database operational** under the **Recovery Completion State** box and click **OK.** A progress bar will display. The restoration procedure takes approximately one minute for an empty database and four to five minutes for the demonstration database.

If all instructions are followed, a confirmation screen for successful database restoration displays (see *Figure 3.1.4.4*) and the database is ready to be used as part of the FinA system.

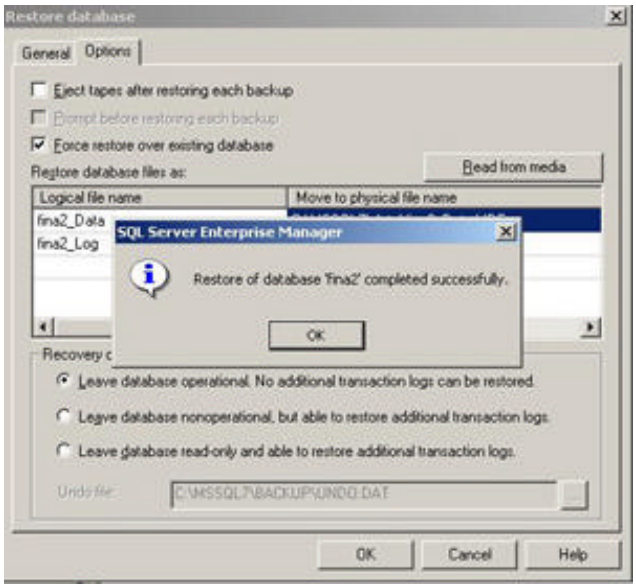

Figure 3.1.4.4, Confirmation Screen

If the application server is installed on another computer, it is necessary to make a few configuration changes. Refer to Chapter 5, "System Configuration" for instructions on how to make these changes.

Note: If the Supervisor wants to name database something other than FinA2, for example, finadb, bankdb, etc., changes to the jboss.JCML configuration file are required. Please refer to Chapter 5.1.3, "Database Name" for instructions on required changes.

3.2. Application Server

3.2.1. Overview

Java Boss (Jboss) is the application server for FinA. This manual describes the installation procedure for Windows-based computers.

The executable files for the installation are built with InstallAnywhere Now. For more information on the installer go to http://www.zerog.com.

3.2.2. Installation procedures

Note: In FinA, it is necessary to maintain all default options.

Click on the server executable file (**FinAs.exe**) from the installation CD to start the installation and then follow the instructions on the screen. The Introduction screen displays. See *Figure 3.2.3.1*. Click on **Next**

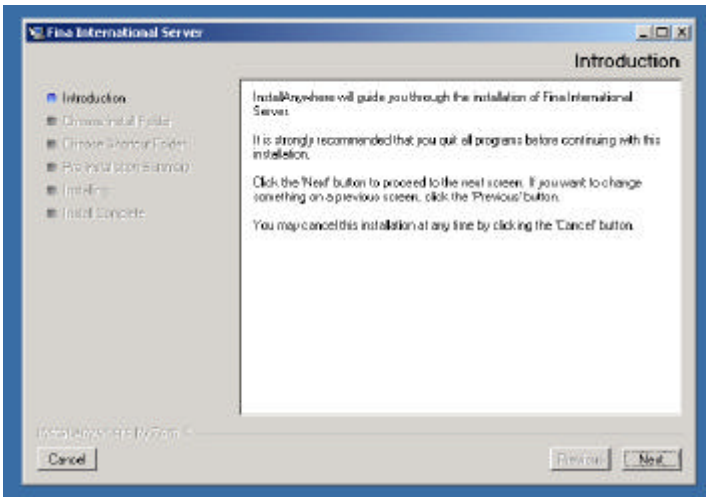

Figure 3.2.3.1, Introduction Screen

1. Then, click on the **Choose Install Folder**: The default installation directory is **C:\Program Files\FinA2Server**. See *Figure 3.2.3.2*. Click **Next**.

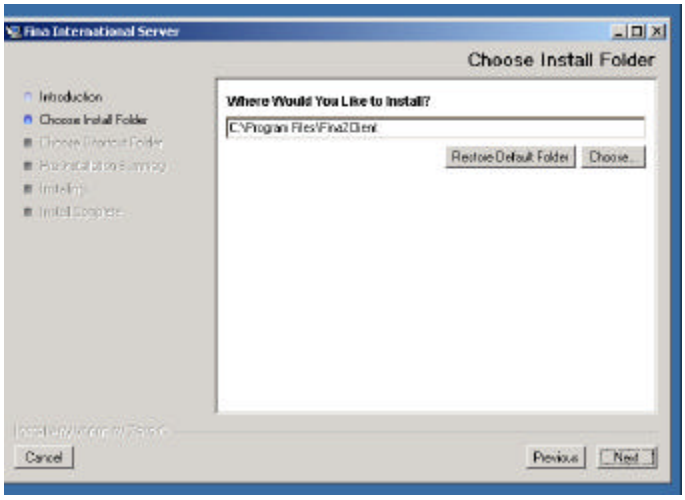

Figure 3.2.3.2, Default Installation Directory

2. Next, click on **Choose Shortcut Folder**: Accept the default folder and click on **Next**. See *Figure 3.2.3.3*.

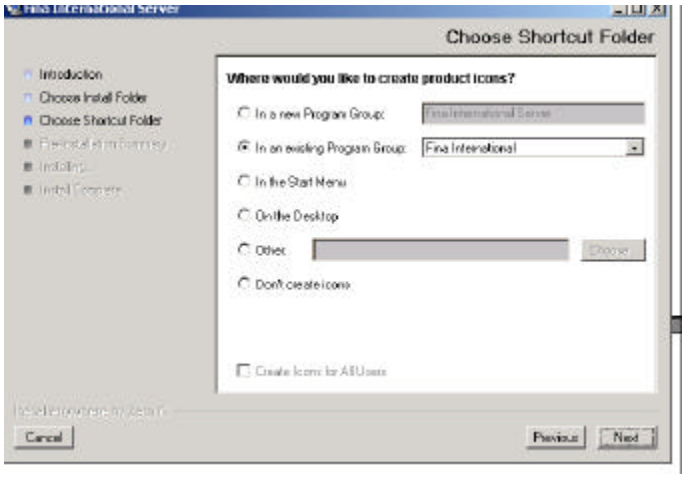

Figure 3.2.3.3, Choose Shortcut Folder

3. Summary screen: a Pre-Installation Summary of your selected options will appear next. See *Figure 3.2.3.4*. Review this screen and if the information is correct, click on **Install**. If you wish to make changes to the selections, click on **Previous**. This takes you back to the earlier screens where changes can be made.

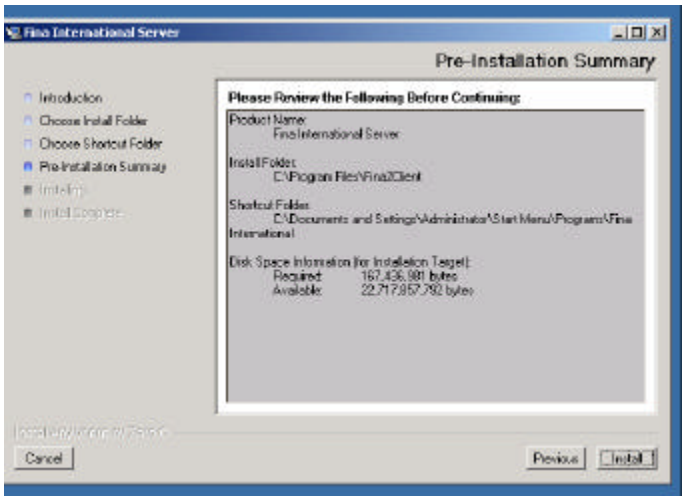

Figure 3.2.3.4, Pre-Installation Summary

Once changes are completed, click on **Install** and a progress bar appears. See *Figure 3.2.3.5*.

Figure 3.2.3.5, Installing FinA International Server

If the installation is successful, an **Install Complete** screen appears. Click on **Done** to exit the installer. See *Figure 3.2.3.6*.

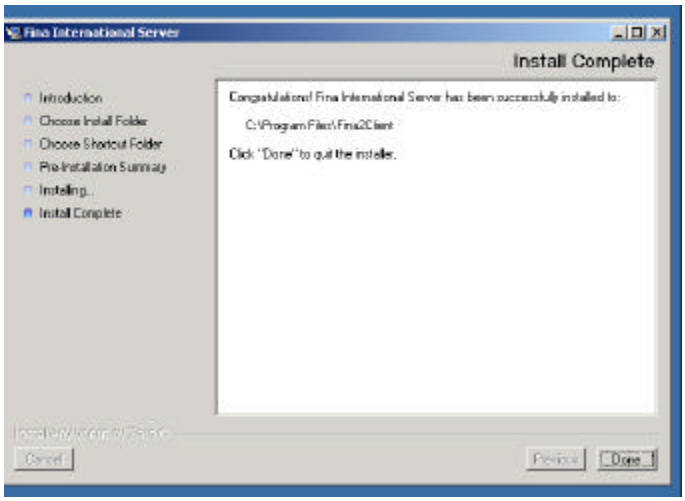

Figure 3.2.3.6, Install Complete

Note: The installation of the application server takes approximately two to four minutes depending on the computer and the selections made during installation.

Note: If the application server and the database server are installed on different machines, the appropriate configuration changes must be made. See detailed instructions for configuration changes in Chapter 5, "System Configuration".

3.2.3. Running the Application Server

Note: The database server must be installed, properly configured, and running prior to starting the application server.

The application server can be started in two ways: by using the default shortcut or by starting it as a service. The difference from a user perspective is that when the server is

run as service no additional screens open at start-up, like MS DOS and Open Office spreadsheet.

To use the default shortcut click on **Start/Programs/FinAInternational/ FinAServer**. Sample screen is shown on *Figure 3.2.4.1*.

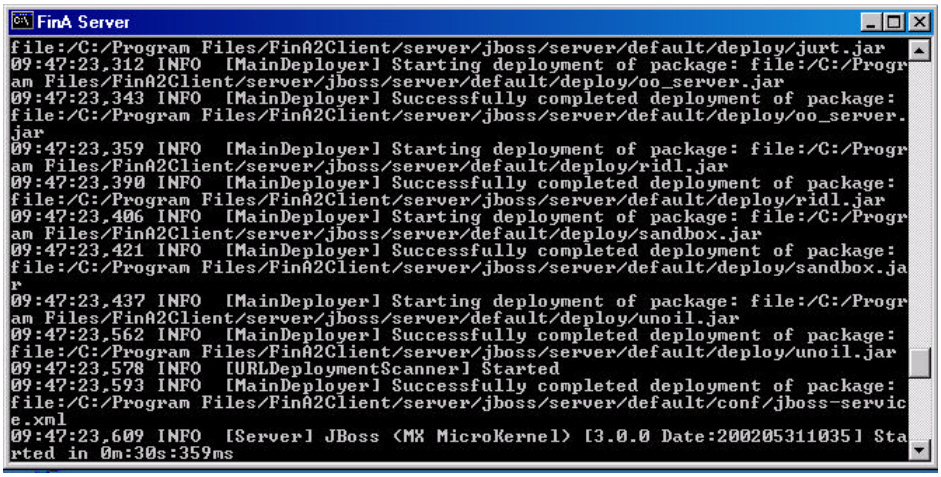

Figure 3.2.4.1, Default Shortcut

If the string: "*time* INFO [Server] JBoss (MXKernal) [3.0.0 *Date*] Started in *x time*" appears, the server has started successfully.

In case of an error, (for example, the database server stops and/or the database is damaged) the application server will still be able to start, but the client will not be able to successfully connect to it (see Section 3.3.4, “Running FinA Client”).

To install FinA as an NT service click on **Start/Programs/FinAInternational/ Install Server as NT Service**. The screen on *Figure 3.2.4.2* opens.

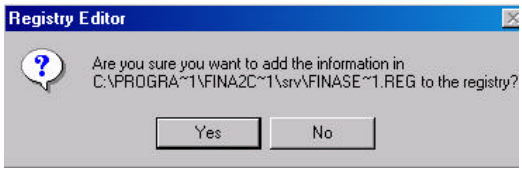

Figure 3.2.4.2, Registry Editor/NT Service

Click **Yes**. The screen on *Figure 3.2.4.3* opens.

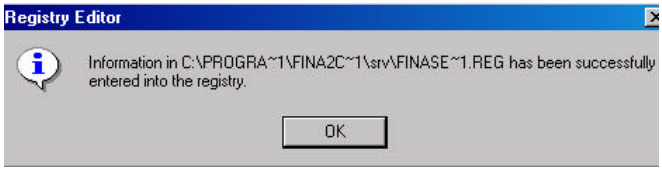

Figure 3.2.4.3, Registry Editor Confirmation Screen

Click **OK**. Open **Start/Settings/Control Panel/Administrative Tools/Services**. To configure the service highlight FinA Server on the list of services, right click and select **Properties**. See *Figure 3.2.4.4*.

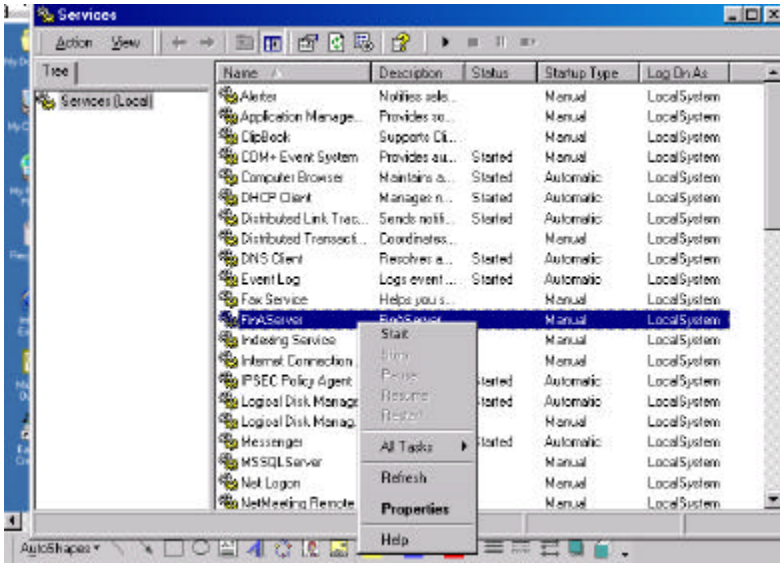

Figure 3.2.4.4, Services Configuration

On the Properties screen click on the **Log On.** Select **This Account.** Click **Browse** to enter the appropriate user, who will have permission to start FinA as a service. Fill out the **Password** fields. Click **OK**. See *Figure 3.2.4.5*.

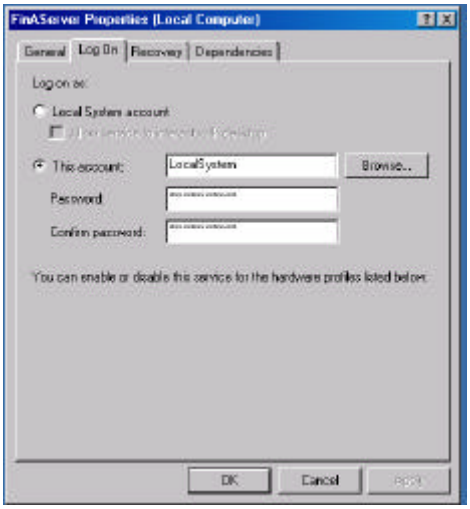

Figure 3.2.4.5, FinAServer Properties

FinA server is now configured to run as a service. To start the server open **Start/Settings/Control Panel/Administrative Tools/Services,** highlight FinA Server on

the list of services, right-click and select **Start**. The status of the server changes to **Started**. See *Figure 3.2.4.6*.

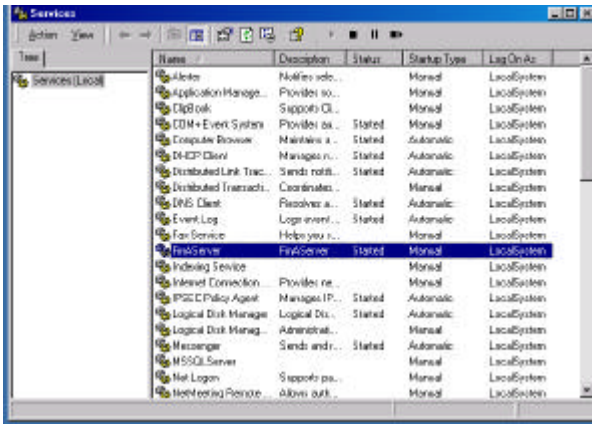

Figure 3.2.4.6, Server Status

3.3. Client

3.3.1. Overview

The FinA2 client is a Java application. It requires Java Virtual Machine to run on a PC. A Java Runtime Environment (JRE), version JRE_1.3 is included in the installation file. The installation process for the FinA client takes approximately one to three minutes depending on the performance of the specific computer and the selections made during installation.

3.3.2. Installation Procedures

Note: FinA Client must be installed on a different machine than the application.

The executable file for the client is built with the same installer software that is used for the application server file. Therefore, the installation process for the client is identical to the installation process for the application server. Click on the executable file (FinAc.exe) from the installation CD and follow the instructions outlined in Chapter 3.2.3, “Installation Procedures”.

Note: Installing the client on a different machine from the application server requires changes in the client configuration. Refer to Chapter 5, “System Configuration” for detailed instructions on configuration changes for the FinA client.

3.3.3. Running the FinA Client

Note: Before running the FinA client the database server and the application server must both be running and properly configured.

The default shortcut for the FinA client is **Start/Program Files/FinA International/FinA Client**. After clicking on the FinA Client, the FinA login screen shown in *Figure 3.3.4.1* displays.

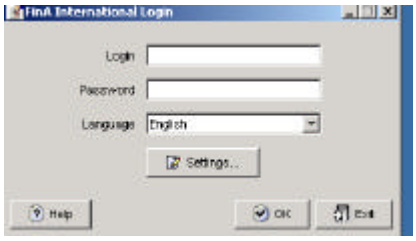

Figure 3.3.4.1, Default Shortcut

When logging into FinA, if a connection to the application server cannot be established, a time out error screen appears. See *Figure 3.3.4.2*.

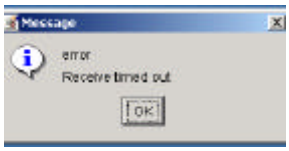

Figure 3.3.4.2, Error message

If this happens click on **OK** and the next screen that will open is the application server **Settings** screen. See *Figure 3.3.4.3*.

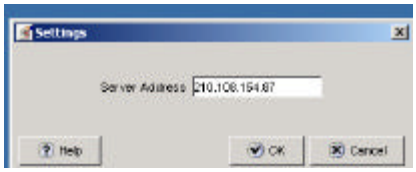

Figure 3.3.4.3, Application Server Settings

When this screen appears, confirm that the IP address for the application server has been entered correctly.

Alternatively, if there is a problem with the database server, the screen on *Figure 3.3.4.4* will appear:

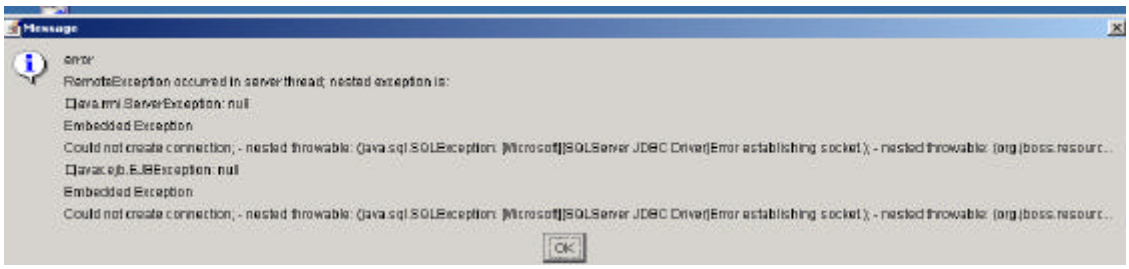

Figure 3.3.4.4, Database Server Problem Message

The database server and connection between the database server and the application server must be corrected prior to running the client again. (Refer to the standard instructions provided in the SQL server user manual and Chapter 5.2, "Application Server and Database Connection" of this manual).

4. Uninstalling the Database Server

To uninstall the database server, follow the instructions provided on the Microsoft Web site for SQL server uninstallation.

To uninstall the client and application server software, use the Add or Remove Programs on the Control Panel and then reboot.

5. System Configuration

This chapter describes how to configure FinA. System configuration consists of three steps:

- Data Base Configuration
- Application Server Configuration
- FinA Client Configuration

5.1. Data Base Configuration:

5.1.1. SQL Server Security Properties:

The MS SQL 7.0/2000 server must have a dual authentication mode that is based both on Windows accounts and named SQL Server ID and password. To confirm that this security mode has been selected find and highlight the server in the **SQL Server Enterprise Manager**, right click on the server and select **Properties**. Then click on the **Security** tab. Under **Authentication,** the **SQL Server and Windows** should be checked. Under **Start up service account** check **System account**. See *Figure 5.1.1.1*.

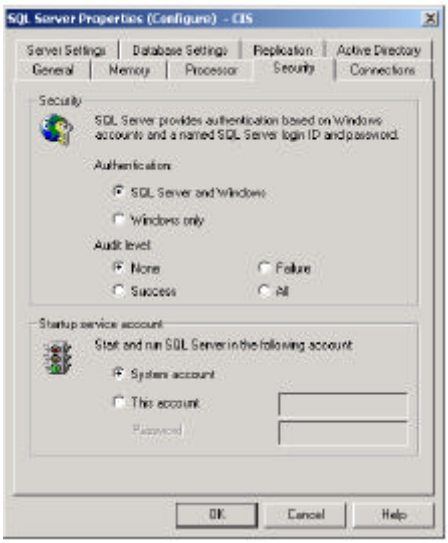

Figure 5.1.1.1, SQL Server Properties, Configure

If these two selections are not marked the FinA application server will not be able to connect to the database server and an error screen similar to *Figure 3.3.4.4* in Chapter 3.3.4, "Running the FinA Client," will appear.

5.1.2. Password for User "SA"

By default the user SA for the database has no password. For enhanced security, it is recommended to assign a password to the SQL server's SA. In order to do this, the following changes to the application server, file **mssql-service.xml,** are required:

- Open file: C:\Program Files\Fina2Client\server\jboss\server\default\deploy\mssql-service.xml with a text editor

- Find fragment:
  <config-property name="UserName" type="java.lang.String">sa</config-property>
  <config-property name="Password" type="java.lang.String"></properties>
  </attribute>

- enter the new password at the identified place below:
  <config-property name="Password"
  *type="java.lang.String">**NEWPASSWORD**</properties>*

- save and close the file

5.1.3. Database Name

To change the name of the database from "fina2" to another name, for example "finadb", the following changes must be made to the mssql-service.xml file on the server:

- open file C:\Program Files\Fina2Client\server\jboss\server\default\deploy\mssql-service.xml with a text editor
- find fragment:
  *<config-property name="ConnectionURL" type="java.lang.String">jdbc:microsoft:sqlserver://**localhost:**1433;**DatabaseName=fina2**;SelectMethod=cursor</config-property>*

- Change the string "*DatabaseName=**fina2**"* to "*DatabaseName=**finaDB".***
- Save and close the file

5.2. Application Server & Database Connection

5.2.1. Single Machine Installation

If the application and database servers are installed on the same machine, no additional changes are required.

5.2.2. Network Installation

If the application and database servers are installed on different machines then the following changes must be made to the application server file:

- open file "C:\Program Files\Fina2Client\server\jboss\server\default\deploy\mssql-service.xml" with a text editor

- find fragment:

```
<attribute name="ManagedConnectionFactoryProperties">
    <properties>
        <config-property name="ConnectionURL"
    type="java.lang.String">jdbc:microsoft:sqlserver://localhost:1433;DatabaseName=fina2;SelectMethod=cursor</config-property>
```

- change **"//localhost**:1433**"** to **"//DatabaseComputerName**:1433". "DatabaseComputerName" is the network name of the computer on which the database is located. The computer's IP address can also be used.

- Save and close the file

Note: If the system is configured for a network setup and the applications are moved to run on a single machine, follow the instructions above and replace the "DatabaseComputerName" with "localhost".

5.2.3. Connection When the System Account Cannot Be Used

If the Supervisor's security policy does not allow the application server to connect to the database server with a System Account, then a new user account must be created, i.e., "fina_admin". This new user account must have "Database Owner" status for the FinA2 database. Follow the steps below to make the appropriate changes.

- open file "C:\Program Files\Fina2Client\server\jboss\server\default\deploy\mssql-service.xml" with a text editor

- find fragment:

```
<config-property name="UserName" type="java.lang.String">sa</config-property>
   <config-property name="Password" type="java.lang.String"></config-property>
  </properties>       </attribute>
```

- change to

```
<config-property name="UserName" type="java.lang.String">fina_admin</config-property>
```

- Save and close the file

5.3. Client & Application Server Connection

5.3.1. Network Installation

The client and the application server must be installed on two different machines in order for FinA to function properly.

For a network configuration, follow the steps outlined below:

- Run FinA Client from **Start/Program Files/FinAInternational/FinAClient**
- A **Timed out** error message will appear as the client tries to connect to the default application server. Immediately after the error message appears, the **Settings** screen will open with the default IP address for the application server, which is not correct.
- In the **Server Address** field, type the correct network name or IP address for the computer on which the application server is installed. See *Figures 3.3.4.2 and 3.3.4.3* in Chapter 3.3.4, "Running the FinA Client..

Note: If the network name for the application server is used, it must be a properly configured and functioning Domain Name System (DNS) server for your LAN. If the DNS is not used, the following configuration changes are required:

- Open file **hosts**. By default it is located in the folder **c:\winnt\system32\drivers\etc** for Windows NT/2000/XP and folder **c:\winnt\system32** for Windows95/98/Me
- Read the instructions
- Add a line:

  <IP> <AppServerName>

Where *<IP>* is the IP address of the computer that has the application server and *<AppServerName>* is the name of that computer.

For example:
102.54.94.97 FinASERVER
38.25.63.10 FinAAPPSER

- Save and close file

5.4. Localization (Translation, Fonts, Number, and Date Formats):

FinA can be translated into any language that is supported by Java. To configure FinA for another language complete the following three procedures:

- Create locale
- Create/Translate message bundles
- Translate Menus

5.4.1. Create Language

The instructions to translate FinA into another language follow:

Note: If the font for the language into which FinA will be translated has already been installed, go to the next step. If not, follow the instructions below to install the font.

First obtain the true type font (.ttf) for that language. Some fonts come pre-installed on Windows; others can be downloaded from the Internet. For example, to add the Russian language, the russian.ttf is required. To install, go to **Start/Settings/ControlPanel/Fonts**. Open **File** from the Main menu and click on **Install New Font**. Find the russian.ttf file in the browser that opens and click on **OK**.

- Start the FinA client and go to **File/Languages** under the Main menu. See *Figure 5.4.1.1*.

Figure 5.4.1.1, File Languages

- Click on **Create**. The screen on *Figure 5.4.1.2* will appear. Enter a code for the new language, which must adhere to the following naming convention: example *en_US* for English or *ru_RU* for Russian, etc.
- Enter the name of the language in the description field. In this case enter *Russian*.

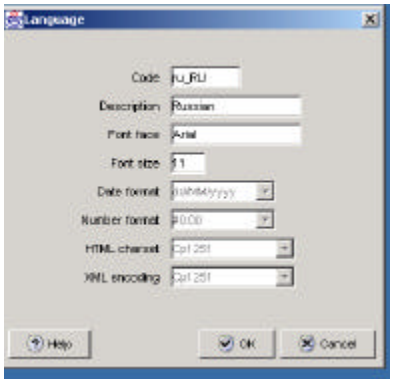

Figure 5.4.1.2, Language Name

- In the **Font face** field, enter the name of the true type font.
- Enter the size of the font in the **Font Size** field. The recommended font size is *11*.
- To set up the date format, click on the drop down menu button to the right of **Date Format** and select the preferred format.
- To define the format for the numbers, click on the drop down to the right of **Number format** and select a format. A custom format can also be defined.
- The HTML charset is to format the presentation of the spreadsheet. To change, click on the drop down menu to the right of **HTML charset** and make a selection. The ASCII setting should work for most languages.
- The XML encoding is for presentation purposes in the browser. To change the selection, click on the drop down menu to the right of **XML encoding** and make a selection. The ASCII setting should work for most languages.
- After all of the selections are made, click **OK**.

5.4.2. Translation of Message Bundles

The text for all system alerts, screen captions, error messages, warnings, etc., are stored in message bundles. Each language has its own message bundle with a relevant extension. All message bundles are located in folder **C:\Program Files\FinA2Client\conf** on the FinA client computer. The naming convention for the message bundles has the following format: **messages_xx_XX.properties** where xx_XX is the language name (code). For example:
messages_en_US.properties - message bundle for English (U.S.)
messages_ru_RU.properties - message bundle for Russian

To create a new language in the system, follow the steps outlined below:

- Copy the existing file **messages_en_US.properties** and change the name to **messages_xx_XX.properties** where xx_XX is the name of the new language. For example, if you are translating into Russian, the newly created message bundle name should be **message_ru_RU.properties**.
- Open the newly created file. The information is presented in the form of strings with two parts, for example:

```
fina2.login.loginButton=Login
fina2.title=Fina2
fina2.ok=OK
fina2.login.chooseLanguage=Choose language
fina2.login.loginFrameTitle=Fina2 Login
fina2.login.password=Password
fina2.login.userName=User Name
fina2.help=Help
```

- Translate the part of the equation to the right of the "equals" sign into the new language. For example, if you are doing a translation into Russian, then the example displayed above would change to the following list:

```
fina2.login.loginButton=ВХОД
fina2.title=Fina2
fina2.ok=ДА
fina2.login.chooseLanguage=Выберите Язык
fina2.login.loginFrameTitle=Вход в Fina2
fina2.login.password=Пароль
fina2.login.userName=Имя пользователя
fina2.help=Помощь
```

- Save and close the file

5.4.3. Translation of Menus

To translate the menus for FinA:

- At login, choose the new language
- The default language for FinA is English so all menus will initially be displayed in English
- Open **FILE/Menu Tree**
- Amend all menus by translating them into the new language

6. Security

6.1. Built-in Tools—Using Secure Socket Layer (SSL) with FinA

Application Server

1. Download Java Secure Socket Extension (JSSE) from http://java.sun.com/products/jsse
2. Install JSSE

   Follow steps 1 through 5 of the installation instructions on http://java.sun.com/products/jsse/install.html

   Copy the JSSE jars to your jboss\lib\ext directory

3. Generate a Server Key and Certificate

   Note: The keystore files will be generated in the directory that keytool is run from.

   The following shell script can be used to create a server certificate for testing:

```
keytool -genkey -alias tomcat -keyalg RSA \
  -dname 'CN=your.domain.com, OU=Skunk Works Unit, O=Your Organization,
L=Your Location, S=Your State, C=US' \
  -keypass changeit \
  -storepass changeit \
  -keystore server.keystore
```

   It is possible to import existing certificates generated with OpenSSL using keytool.

4. Configure JBoss

To enable SSL support, it is necessary to change the container invoker configuration of JBoss placed in "jboss\conf\tomcat\standardjbos.xml" file. *Figure 6.1* illustrates standardjbos.xml elements that are available for customizing the container-invoker element.

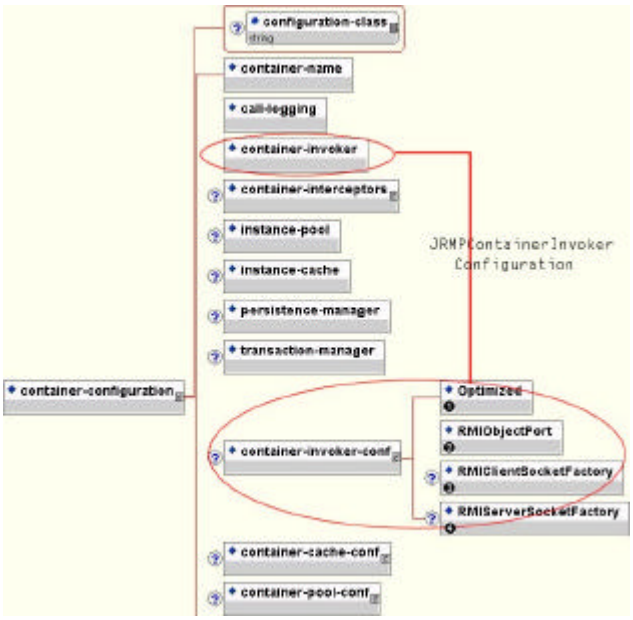

Figure 6.1, Configure jboss

Customization of the ContainerInvoker sockets involves specifying the classes that implement SSL socket factory.

```
<container-invoker-conf>
  <Optimized>true</Optimized>
  <RMIObjectPort>4445</RMIObjectPort>
  <RMIClientSocketFactory>
        fina2.net.SSLClientSocketFactory
  </RMIClientSocketFactory>
  <RMIServerSocketFactory>
fina2.net.SSLServerSocketFactory
  </RMIServerSocketFactory>
</container-invoker-conf>
```

6.2. External Modules

Security procedures should be customized to meet the needs of the individual Supervisory Agency. The following external tools and packages are widely available to institutions in order to enhance system and network security:

- **Electronic Signature and Certificates for Returns Received by E-mail**
  It is critical to ensure that bank returns and communications sent by e-mail to the Supervisor cannot be accessed by third parties. There are a number of software tools on the market that use digital IDs, digital signatures, public/private keys, and encryption to secure electronic mail.

- **Firewall for Network**
  FinA uses only ports 1099 and 4444, therefore, all other ports in the network can be closed by a firewall (unless there are additional requirements from other modules—HTTP Browsers, ftp downloads, etc). FinA was tested for use with two firewalls—"Check Point" and "Symantec™ Enterprise Firewall".

- **Database Security**
  It is strongly recommended not to use "SA" user for FinA application server and SQL connectivity. For greater security, create a new user (finadb) - with status "dbowner" for the FinA database. Set up configuration files as described in this manual, Section 5.1.

7. Contingency Procedures

7.1. Database Back-up

As a standard security measure, periodic back-ups of the database are recommended. These back-ups should be scheduled based on the schedule of returns from the banks. For example, if there are quarterly, monthly, and weekly returns from the banks, then back-ups should take place every Sunday and/or when "CPU become(s) idle".

1. To create a database backup in SQL Server Enterprise manager, refer to the SQL server user manual.

7.2. Program Restorations

In very rare circumstances, memory overlapping may occur if the application server runs on a machine on which other client-server applications are installed. If this should occur, re-start FinA and if necessary re-boot the PC.

To restore FinA following an equipment outage, re-install the software (application server and FinA client). No information will be lost because the data is stored on the database server. With proper backup procedures in place for the database, a working copy should always be available.